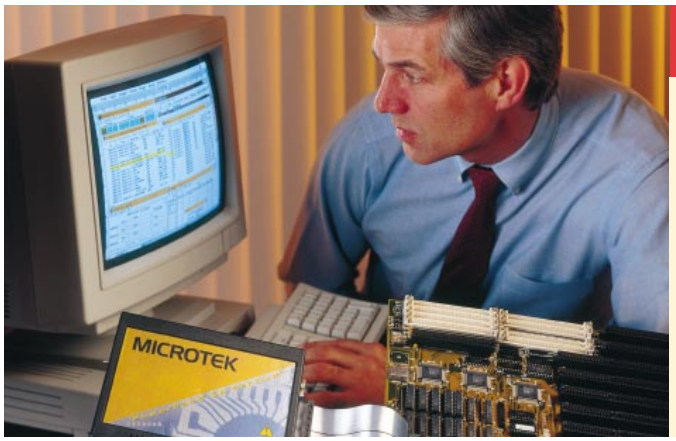


TECHNICAL DATA

MICROTEK

IN-CIRCUIT EMULATORS

For Pentium® II Processors

Three PowerPack® Emulators for Pentium II Processors

The PowerPack family of Pentium II emulators from Microtek provides a range of price/performance to meet the needs of everyone on the development team. Each of the three products provides a carefully chosen set of debug features.

PowerPack ITP: Provides a JTAG, source-level debugger, ideal for firmware and software development.

PowerPack SW Plus: Provides bus-level trace and triggering functions, ideal for solving a wide variety of embedded software and hardware problems.

PowerPack EA: Enhances the trace and triggering functions with Microtek's exclusive clock-level trace to solve the toughest debug problems affecting your target system.

The upgradable PowerPack family provides a comprehensive set of features at attractive prices.

PowerPack EA-Pentium II: Our Full-Feature Pentium II Solution

When you need all of the power of a full-featured emulator, the PowerPack EA emulator is the product to choose. The PowerPack EA lets you view source code during debug. This increases your productivity by showing you actual source as the execution occurs. Multiple memory windows allow you to view execution at the code level and see the changes to the memory area. Memory can be easily shown in a variety of formats and modified directly as required.

The variable window and the stack window also allow you to easily view and modify variable values.The variable window shows updated variable values as execution continues. The stack window shows the call stack and details of global and local variables.

The PowerPack EA-Pentium II emulator gives you complete control over the embedded system. It provides you a way to load and execute code in the target system without using any additional resources of the target. This is important if the target has no available serial port or network ports for connection using a conventional software debugger. No ROM space is required. The emulator has 256 software breakpoints available. Four hardware breakpoints, implemented with Pentium® II debug registers, allow you to set breakpoints in ROM and Flash memory. Single-step operation at the source level or assembly level and step over functions as needed during debug.

If you need to change the code, the emulator is equipped with an assembler/disassembler that supports all of the Pentium II instructions.

The EA-Pentium® II emulator combines powerful analysis features, helping you to move forward more quickly in your development. The scripting language allows further productivity by allowing you to automate repeatable tasks. On-line help provides quick context-sensitive directions so you can find answers quickly, to stay on the job. Taken together, these features add up to enhanced productivity for the development team.

The EA-Pentium® II emulator trace is 160-bits wide, with address, data, and status lines and a 40-bit time stamp. This allows you to track down not only the executed code, but also follow the memory reads and writes that occurred. The time-stamp captures actual execution times of critical routines.

Along with this detailed trace system is a triggering system to control both the emulation and trace operations. The triggering system can define events based on addresses, or ranges of addresses, data, or ranges of data, and also specify particular status-signal patterns. You can then configure events to trigger the system to halt, capture trace frames, turn trace on/off, increment timers/counters. The ability to specify up to four levels of triggers adds additional power to the triggering system. Each trigger level is independent from the others. The features available on this emulator can be used to tackle the most elusive problems you will encounter in your embedded product.

PowerPack EA Trace System Features

- *256K frames (bus mode) or 128K frames (clock mode) deep; 160 bits wide*
- *System bus speeds to 100 MHz*
- *Pre-, post-, and center-triggered trace*
- *Qualified trace using complex triggers as filters*
- *40-bit time stamp with 40-ns resolution*
- *Linked cursor relating each trace frame back to the source code*
- *Trace can start, stop and be displayed during full speed emulation*
- *Trace capture can be controlled by complex event triggers*
- *8 external channels*

PowerPack EA Trigger System Features

- *8 global event recognizers that monitor 36 address bits, 64 data bits, and 23 status lines*
- *Ranges, bit masking, and negation on address and data*
- *Two 16-bit event counters, or two 16-bit timers, or one 32-bit timer*
- *4-level sequencer controls complex triggers and debug registers*
- *Trigger system controls trace collection, timestamp, external triggers, and breakpoints*

PowerPack® ITP-Pentium II: Lets Software Developers See Their Code at Work

ITP-Pentium® II enhances your vision of the embedded system, letting you view source code during debug. This increases your productivity by showing you actual source as the execution occurs.

Multiple memory windows allow you to view execution at the code level and see the modification to the data area. You can also move variables into a watch window which shows their values even as execution continues.

Another important debug feature is the stack window. This window shows the call stack and displays variables that are within the current scope of execution. You can modify variable values in the stack and

Preserve your investment by upgrading in the future

Features common to all PowerPack EA, SW Plus and ITP emulators

- *Supports 233 MHz - 450 MHz Pentium II Processors with MMX™ technology*
- *View and modify all Pentium II processor model specific registers*
- *256 software breakpoints*
- *4 hardware breakpoints using Pentium II processor debug registers*
- *View and modify CPU registers and memory*
- *No target RAM resources used*
- *Supports real, virtual-86, protected and system management modes of the processor*
- *Source Level Debug for toolchains that produce OMF-86 and OMF-386 output*
- *Flash programming support*
- *WindRiver® Tornado and CAD-UL® XDB debugger interface options available*
- *C++ source-level debug*
- *Network option*
- *Ability to single step at the source or assembly code level*
- *Detailed self-test diagnostics*

variable windows, and modify memory in the memory window.

ITP-Pentium® II enhances your control of the embedded system. You can load code into the target system's memory without using any additional resources of the target.

Up to 256 software breakpoints can be set for flexibilty in partitioning your debug problem. Four hardware break-points allow you to work in ROM and Flash. Single step at the source level or assembly level and step over functions as needed during debug.

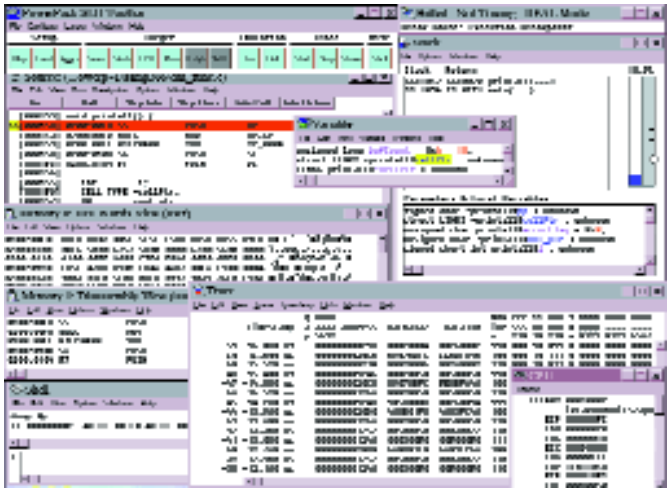
If you need to change the code, the ITP-Pentium® II is equipped with an assembler/disassembler that supports all of the Pentium® II instructions.

The windows™ based ITP-Pentium II interface enhances your productivity. WindRiver® Tornado or CAD-UL XDB debugger interfaces are available options. The scripting language allows further productivity by allowing repeatable tasks to be automated. On-line help provides quick context sensitive directions to allow you to stay on the job.

PowerPack SW Plus Pentium II: Entry-level Emulator Features at an Affordable Price

The SW Plus Pentium® II emulator gives you the power to uncover problems during the software/hardware integration stage. You have all of the processor control and display features of the ITP-Pentium® II emulator, along with a trace that provides bus and instruction display.

The trace provides execution history even when the processor is executing from its cache. The addition of the trace feature allows you to collect



execution history to see how the processor ended up in a particular error routine. The trace feature has the ability to be linked back to the source allowing you to quickly identify the portion of source code that is causing difficulty.

The system can start, stop, and view trace without affecting real-time emulation. This can be especially useful in applications like communications, where stopping asynchronous communication is not feasible.

Along with the bus level trace feature is a triggering system to control emulation and trace. The triggering system can define events based on addresses, or ranges of addresses, data, or ranges of data, and also status signals at bit-level granularity. These events can then be configured to trigger the system to halt emulation, or start or stop the trace system. The ability to specify up to four levels of triggers adds additional power to the triggering system. Each trigger level is independent from the others.

PowerPack SW Plus Trace Features

- *256K frames bus-level trace x 160 bits width*
- *System bus speeds to 100 MHz*
- *Qualified trace using complex triggers as filters.*
- *40-bit time stamp with 40ns resolution*
- *Pre-, Post-, and Center triggered trace*
- *Trace 100% accurate even with cache enabled*
- *Linked cursor relates each trace frame back to the source code*
- *Trace can start, stop and be displayed independent of emulation*
- *Trace capture can be controlled via the debug registers*
- *8 external channels*

PowerPack SW Plus Trigger System

- *8 global event recognizers that monitor 36 address bits, 64 data bits and 23 status lines*
- *Ranges, bit masking and negation on address and data*
- *Two 16-bit event counters or two 16-bit timers or one 32-bit timer*
- *4 level sequencer controls complex triggers and debug registers*
- *Trigger system controls trace collection, timestamp, external triggers and breakpoints*

TECHNICAL DATA

PC Host Requirements

Requires a 486 based PC (Pentium recommended) with a minimum of 8 MB of RAM (16 MB recommended for Win95), an SVGA color monitor, CD-Rom, free serial port and a mouse. (TCP/IP ethernet adapter optional)

Operating system: Windows® 3.1, 3.11, 95, 98 or NT.

Dimensions and Environmental

Dimensions	Chassis	Probe
Height:	2.0”	0.625”
Width:	4.6”	4.375”
Length:	7.2”	5.5”

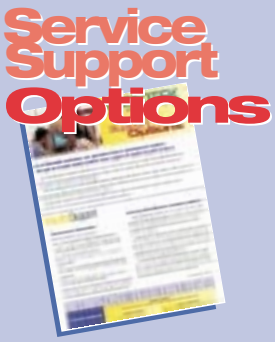
Note: Mobile Module Connector-2 targets require 4.375” clearance from West edge of MMC-2 connector, 0.25” from East edge, 0.25” from North edge, and 1.75” from South edge.

Temperatures

Operating .....10 to 35˚C
Storage .....10 to 50˚C

Relative Humidity .....20 to 80%
Shipping Weight .....10 lb.

PRODUCT CODE	DESCRIPTION
PP-EA-P2-SLOT1	PowerPack EA Pentium II system with Slot 1 adapter. Includes emulator chassis, probe, 256 K trace, serial cable, power supply, software, online manuals, documentation.
PP-EA-P2-MMC2	PowerPack EA Pentium II system with Mobile Module Connector-2 adapter. Includes emulator chassis, probe, 256 K trace, serial cable, power supply, software, online manuals, documentation.
PP-SWPLUS-P2-SLOT1	PowerPack SW Plus Pentium II system with Slot 1 adapter. Includes emulator chassis, probe, 256 K trace, serial cable, power supply, software, online manuals, documentation.
PP-SWPLUS-P2-MMC2	PowerPack SW Plus Pentium II system with Mobile Module Connector-2 adapter. Includes emulator chassis, probe, 256 K trace, serial cable, power supply, software, online manuals, documentation.
PP-ITP-P2	PowerPack ITP Pentium II system. Includes emulator chassis, JTAG cable, power supply, software, online manuals, documentation.
PP-ITP-SLOT1	PowerPack ITP Pentium II Slot 1 Processor JTAG adapter
PP-NETWORK	Network option for PowerPack Pentium II
GOLD-2Y	Provides 2 years of warranty on new systems
GOLD-1Y	Provides one year of warranty on new systems
GOLD-1R	Extends existing warranty coverage for 1 year
GOLD-1D	Provides coverage to equipment not currently under warranty



Products are warranted against defects in materials or workmanship for a period of 90 days. Contact your sales representative for information on our Gold Support Program – this provides hardware, software, and firmware updates, plus repair coverage for your emulator.

For more information about Service Support Options to match your project requirements, contact Lisa Rice at (800)886-7333x4038.

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